

Autonomous Truck - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-06-01 | 100 pages | Mordor Intelligence

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Report description:

Autonomous Truck Market Analysis

The Autonomous Truck Market size is estimated at USD 39.51 billion in 2025, and is expected to reach USD 65.72 billion by 2030, at a CAGR of 10.70% during the forecast period (2025-2030). Persistent driver shortages and rising labor costs challenge traditional fleets, driving the adoption of heavy-duty platforms with high asset utilization. Regulatory mandates, such as emergency-braking systems, and falling sensor prices are accelerating modernization and commercial pilots. As Level 4 trucks prove reliable on long-haul routes, stakeholders benefit from faster pay-back cycles, increased trailer turnover, and fuel and emission savings, advancing the autonomous truck market toward scaled deployment.

Global Autonomous Truck Market Trends and Insights

Driver Shortage & Rising Line-Haul Labor Cost

The American Trucking Associations reported more than 80,000 unfilled heavy-duty positions in 2024, a gap expected to widen as driver retirements outpace new entrants. Mandatory rest breaks and overtime premiums inflate total cost of ownership, making 24/7 autonomous operation financially attractive on routes exceeding 500 miles. Successful Level 4 pilots along Texas corridors have doubled trailer turns and cut per-mile labor spend by over 35%. Logistics majors are now redesigning networks with autonomous trunk lines complemented by human-driven last-mile loops.

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Demand for 24/7 Hub-to-Hub Logistics

E-commerce fulfillment windows and just-in-time manufacturing call for clock-round capacity. The controlled access of interstate highways suits sensor perception and redundancy targets, allowing fleets to dispatch autonomous Class 8 tractors on predictable lanes. Aurora completed a 1,200-mile driver-out run between Dallas and Houston in 2024, validating the uptime promise of hub-to-hub models. Retail shippers link the resulting latency reductions to inventory shrink, propelling long-term contracts for dedicated autonomous capacity.

Patchwork Global Regulation & Cross-Border Liability

California's AB 316, which restricts autonomous trucks above 10,000 lb without on-board human operators, underscores the fragmented U.S. policy landscape. Similar inconsistencies appear across EU member states despite Brussels' push for a unified framework by 2026. These mismatches require separate permitting, insurance riders, and data-reporting workflows, diluting economies of scale and postponing continent-wide deployments.

Other drivers and restraints analyzed in the detailed report include:

Tightening Safety Regulations / Platooning-Driven Fuel Savings & Emission Mandates / Cyber-Security & OTA Update Risks /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Heavy-duty tractors accounted for 64.5% of the autonomous truck market size in 2024, reflecting the economic leverage of automating long-haul lanes where labor costs eclipse fuel as the largest expense line. Fleet CFO models show pay-back periods under four years when Level 4 systems pass 500-mile duty cycles at 95% uptime. Medium-duty units focus on regional grocery and parcel runs, balancing tighter curbweight limits with growing urban-access restrictions. Light-duty autonomous vans, boosted by e-commerce volumes, post the fastest growth at a 15.1% CAGR, aided by simplified form-factor sensor integration.

Technology partnerships reinforce heavy-duty leadership. Daimler Truck shipped a batch of autonomous-ready Freightliner Cascadia tractors to Torc Robotics for Texas trials, demonstrating OEM commitment to factory-installed redundancy architectures. Meanwhile, light-duty builders exploit camera-only perception to trim bill-of-material costs, positioning for last-mile autonomy once municipal rules evolve. The divergent trajectories suggest a barbell market split: high-value interstate rigs on one end and agile city vans on the other.

SAE 1-2 driver-assist suites represented 58.2% of the autonomous truck market share 2024, but the spotlight is shifting to Level 4 and set to foresee a growth of 26.25% CAGR by 2030. Annualized deployments of driver-out pilots rose 140% between 2024 and 2025, and capital inflows favor companies with L4 roadmaps. Volvo's VNL Autonomous platform, slated for customer delivery in 2025, illustrates OEM faith that full-route autonomy will unlock premium service contracts. Level 3 remains a bridging solution where regulations require fallback readiness, yet its commercial window is narrowing as regulators warm to complete driver removal in set corridors.

Investors endorse the transition: Waabi secured USD 200 million in a Series B round led by Uber and Nvidia to refine AI-first simulation, cutting road-test miles by 80%. This influx underscores the belief that scalable virtual training will speed homologation and compress time-to-revenue for Level 4 entrants. As high-definition mapping costs fall, market analysts expect Level 4 to pass 30% share of active freight miles by 2030, reshaping asset-scheduling logic and insurance underwriting norms.

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The Autonomous Truck Market is Segmented by Truck Type (Light-Duty Trucks, and More), Level of Autonomy (SAE Level 1-2 (Driver Assist), and More), ADAS Features (Adaptive Cruise Control, Lane Departure Warning, and More), Component (LIDAR, RADAR, Cameras, and More), Drive Type (IC Engine, Battery-Electric, Hybrid, and More), and Geography. The Market Forecasts are Provided in Terms of Value (USD) and Volume (Units).

Geography Analysis

North America captured 33.7% of the autonomous truck market share in 2024 due to permissive state-level pilot frameworks and a 48,000-mile Interstate system favoring lane-centered autonomy. Texas hosts commercial routes linking Dallas, Houston, El Paso, and Phoenix, where Aurora, Kodiak, Volvo, and DHL operate revenue-generating loads. Venture funding remains robust: start-ups raised more than USD 1 billion across 2024-2025, reflecting investor confidence in near-term monetisation.

Europe contributed roughly one-third of the 2024 revenue. Germany, Sweden, and the Netherlands spearhead testing thanks to early adoption of UNECE cybersecurity and lane-keeping directives. The Volvo-Daimler software JV positions EU OEMs to deliver over-the-air-upgradable platforms ahead of the 2026 GSR phase-in. Cross-border freight edges forward via digital corridor pilots such as Scandinavia-Hamburg, yet variable national certification timelines still hamper continent-wide scale.

Asia-Pacific remains the fastest-growing region at a 21.4% CAGR. China's Ministry of Transport endorsed nationwide smart-highway projects, enabling local players to rack up 20 million driver-out kilometres by mid-2025. Japan targets Level 4 coverage of trunk lines by 2027, pairing autonomy incentives with support for hydrogen and battery charging depots. South Korea's K-Mobility 2030 plan accelerates telematics coverage, while India eyes autonomous mining and port haulage as first-mover niches. Open-source stacks like Autoware give regional integrators a springboard to customise perception for left-hand-drive urban grids.

List of Companies Covered in this Report:

AB Volvo / Daimler Truck AG / Traton SE / PACCAR Inc. / BYD Co. Ltd. / Tesla, Inc. / TuSimple / Aurora Innovation / Waymo Via / Plus.ai / Torc Robotics / Kodiak Robotics / Nikola Corp. / Einride / Embark Technology / Hyzon Motors / Gatik AI / Volvo-Uber ATG JV / Scania / Navistar /

Additional Benefits:

The market estimate (ME) sheet in Excel format /
3 months of analyst support /

Table of Contents:

- 1 Introduction
 - 1.1 Study Assumptions & Market Definition
 - 1.2 Scope of the Study
- 2 Research Methodology
- 3 Executive Summary
- 4 Market Landscape
 - 4.1 Market Overview
 - 4.2 Market Drivers

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- 4.2.1 Driver shortage & rising line-haul labor cost
- 4.2.2 Demand for 24/7 hub-to-hub logistics
- 4.2.3 Tightening safety regulations (e.g., U.S. AV bills, EU GSR)
- 4.2.4 Platooning-driven fuel savings & emission mandates
- 4.2.5 Synergy of autonomy with zero-emission powertrains
- 4.2.6 Open-source autonomy stacks lowering entry barriers
- 4.3 Market Restraints
 - 4.3.1 Patchwork global regulation & cross-border liability
 - 4.3.2 Cyber-security & OTA update risks
 - 4.3.3 High LiDAR / sensor-suite costs
 - 4.3.4 Scarcity of high-resolution HD maps beyond Tier-1 corridors
- 4.4 Value/Supply-Chain Analysis
- 4.5 Regulatory Landscape
- 4.6 Technological Outlook
- 4.7 Porter's Five Forces
 - 4.7.1 Threat of New Entrants
 - 4.7.2 Bargaining Power of Buyers
 - 4.7.3 Bargaining Power of Suppliers
 - 4.7.4 Threat of Substitutes
 - 4.7.5 Competitive Rivalry

5 Market Size & Growth Forecasts (Value (USD) and Volume (Units))

- 5.1 By Truck Type
 - 5.1.1 Light-Duty Trucks
 - 5.1.2 Medium-Duty Trucks
 - 5.1.3 Heavy-Duty Trucks
- 5.2 By Level of Autonomy
 - 5.2.1 SAE Level 1-2 (Driver Assist)
 - 5.2.2 SAE Level 3 (Conditional)
 - 5.2.3 SAE Level 4 (High)
 - 5.2.4 SAE Level 5 (Full)
- 5.3 By ADAS Feature
 - 5.3.1 Adaptive Cruise Control
 - 5.3.2 Lane Departure Warning
 - 5.3.3 Traffic Jam Assist
 - 5.3.4 Highway Pilot
 - 5.3.5 Automatic Emergency Braking
 - 5.3.6 Blind-Spot Detection
 - 5.3.7 Lane-Keeping Assist
- 5.4 By Component
 - 5.4.1 LiDAR
 - 5.4.2 RADAR
 - 5.4.3 Cameras
 - 5.4.4 Ultrasonic & Other Sensors
 - 5.4.5 AI Compute Modules
- 5.5 By Drive Type
 - 5.5.1 Internal-Combustion

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- 5.5.2 Battery-Electric
- 5.5.3 Hybrid
- 5.5.4 Hydrogen Fuel-Cell
- 5.6 By Geography
 - 5.6.1 North America
 - 5.6.1.1 United States
 - 5.6.1.2 Canada
 - 5.6.1.3 Rest of North America
 - 5.6.2 South America
 - 5.6.2.1 Brazil
 - 5.6.2.2 Argentina
 - 5.6.2.3 Rest of South America
 - 5.6.3 Europe
 - 5.6.3.1 Germany
 - 5.6.3.2 United Kingdom
 - 5.6.3.3 France
 - 5.6.3.4 Spain
 - 5.6.3.5 Russia
 - 5.6.3.6 Rest of Europe
 - 5.6.4 Asia-Pacific
 - 5.6.4.1 China
 - 5.6.4.2 Japan
 - 5.6.4.3 India
 - 5.6.4.4 South Korea
 - 5.6.4.5 Australia
 - 5.6.4.6 Rest of Asia-Pacific
 - 5.6.5 Middle East and Africa
 - 5.6.5.1 GCC
 - 5.6.5.2 Turkey
 - 5.6.5.3 South Africa
 - 5.6.5.4 Rest of Middle East and Africa

6 Competitive Landscape

6.1 Market Concentration

6.2 Strategic Moves

6.3 Market Share Analysis

6.4 Company Profiles (includes Global level Overview, Market level overview, Core Segments, Financials as available, Strategic Information, Market Rank/Share for key companies, Products & Services, and Recent Developments)

6.4.1 AB Volvo

6.4.2 Daimler Truck AG

6.4.3 Traton SE

6.4.4 PACCAR Inc.

6.4.5 BYD Co. Ltd.

6.4.6 Tesla, Inc.

6.4.7 TuSimple

6.4.8 Aurora Innovation

6.4.9 Waymo Via

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- 6.4.10 Plus.ai
- 6.4.11 Torc Robotics
- 6.4.12 Kodiak Robotics
- 6.4.13 Nikola Corp.
- 6.4.14 Einride
- 6.4.15 Embark Technology
- 6.4.16 Hyzon Motors
- 6.4.17 Gatik AI
- 6.4.18 Volvo-Uber ATG JV
- 6.4.19 Scania
- 6.4.20 Navistar

7 Market Opportunities & Future Outlook

7.1 White-space & Unmet-Need Assessment

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